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Lamoncha

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(54) **SYSTEM AND METHOD FOR INCREASING EMPLOYEE PRODUCTIVITY**

(58) **Field of Classification Search**
CPC G06Q 10/06398; G06Q 10/0639; G06Q 10/06393; G06Q 10/063114
See application file for complete search history.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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(60) Provisional application No. 61/164,220, filed on Mar. 27, 2009.

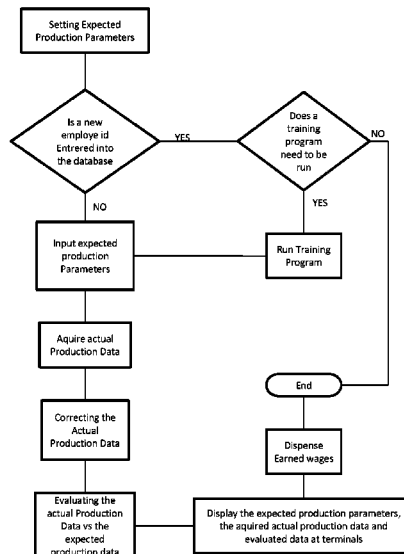
(57) **ABSTRACT**

Systems and methods for increasing productivity in a production activity are provided. A machine for accomplishing the production activity generates units of output, which are monitored by a data acquiring device. An expected earnings rate is generated by a processor based on expected production parameters and earnings data. An evaluated earnings rate is generated by the processor based upon the actual output and the earnings data. The evaluated earnings rate and expected earnings rate is displayed on a display.

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A63F 13/50 (2014.01)

20 Claims, 3 Drawing Sheets

(52) **U.S. Cl.**
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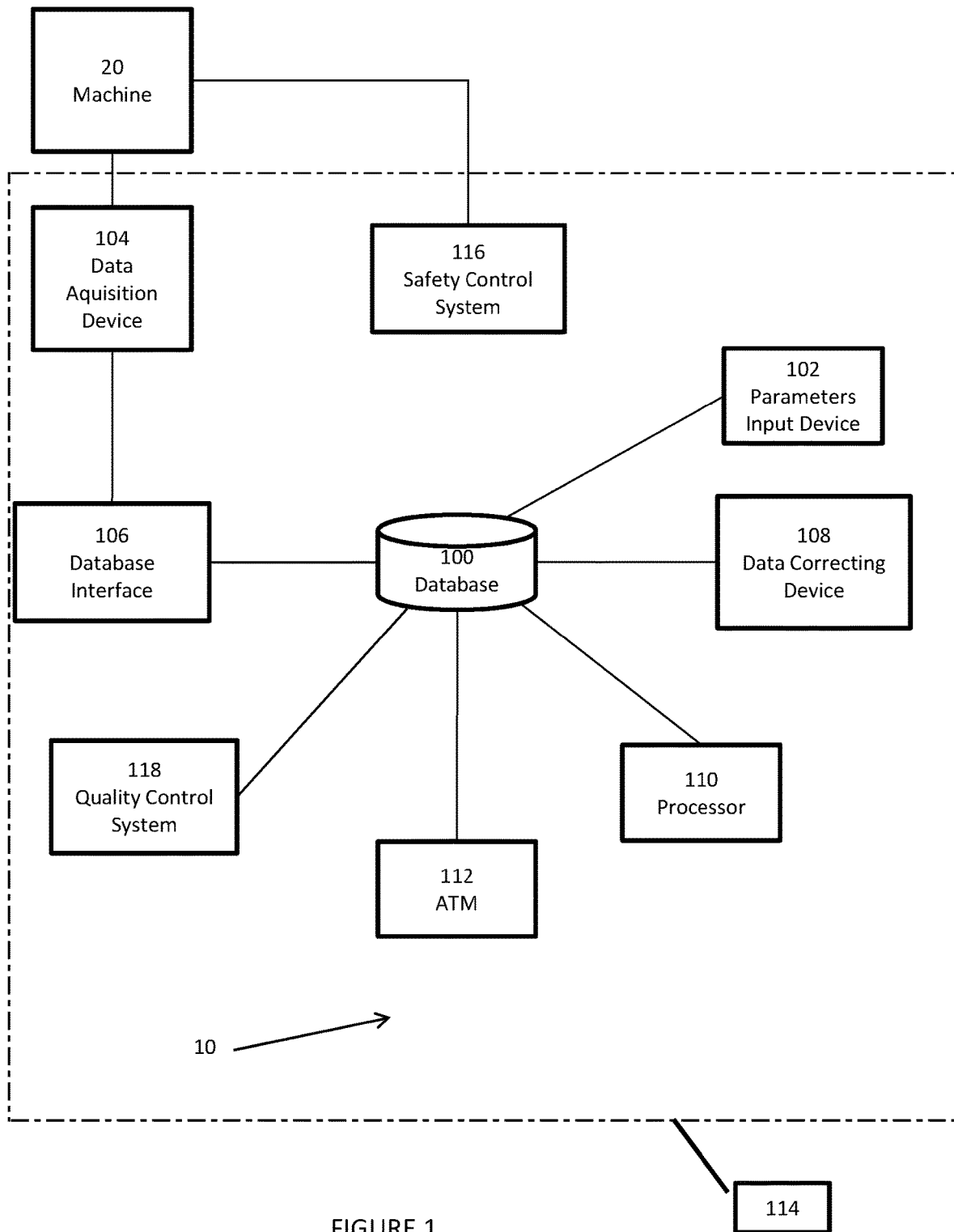


FIGURE 1

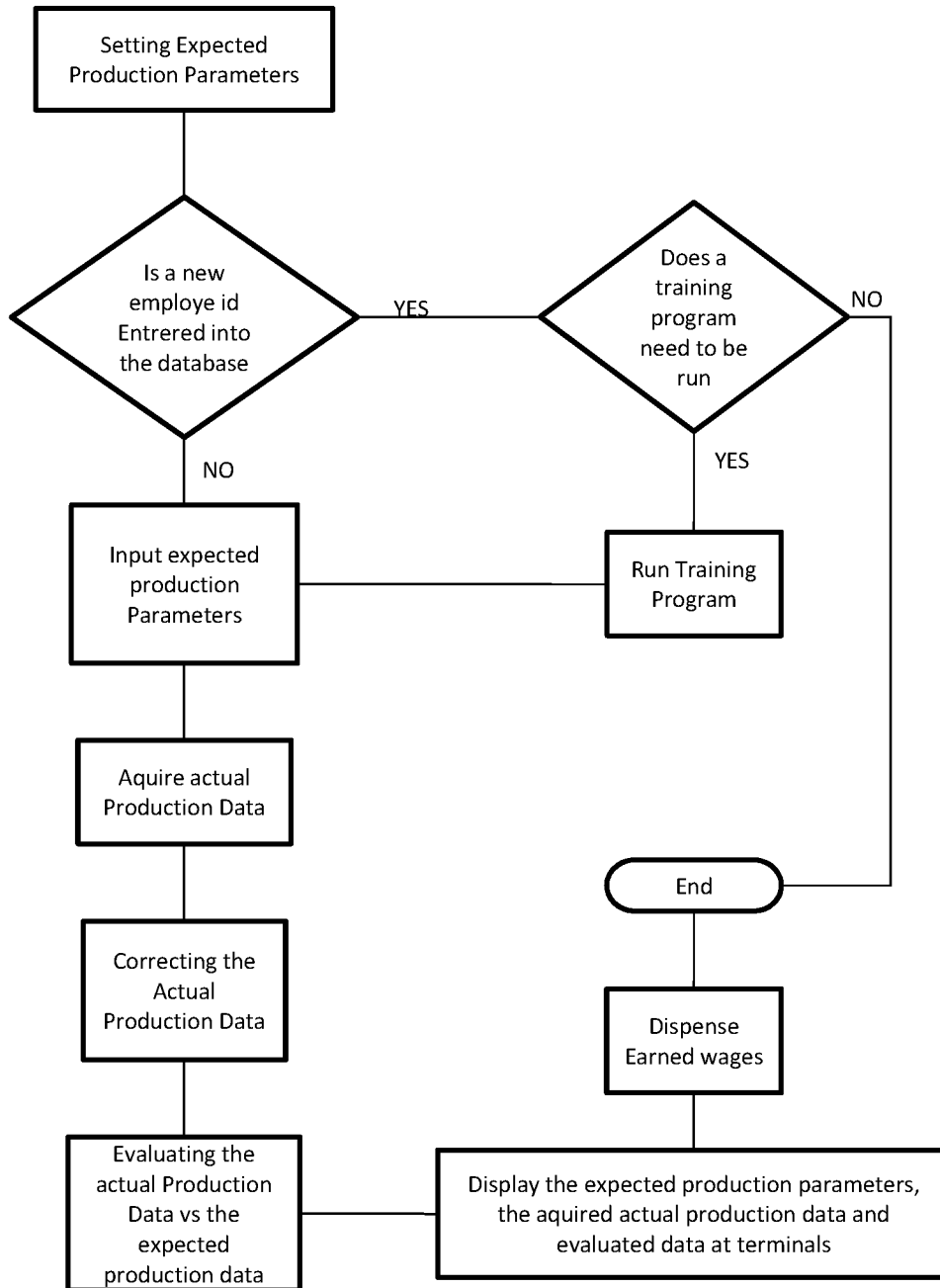


FIGURE 2

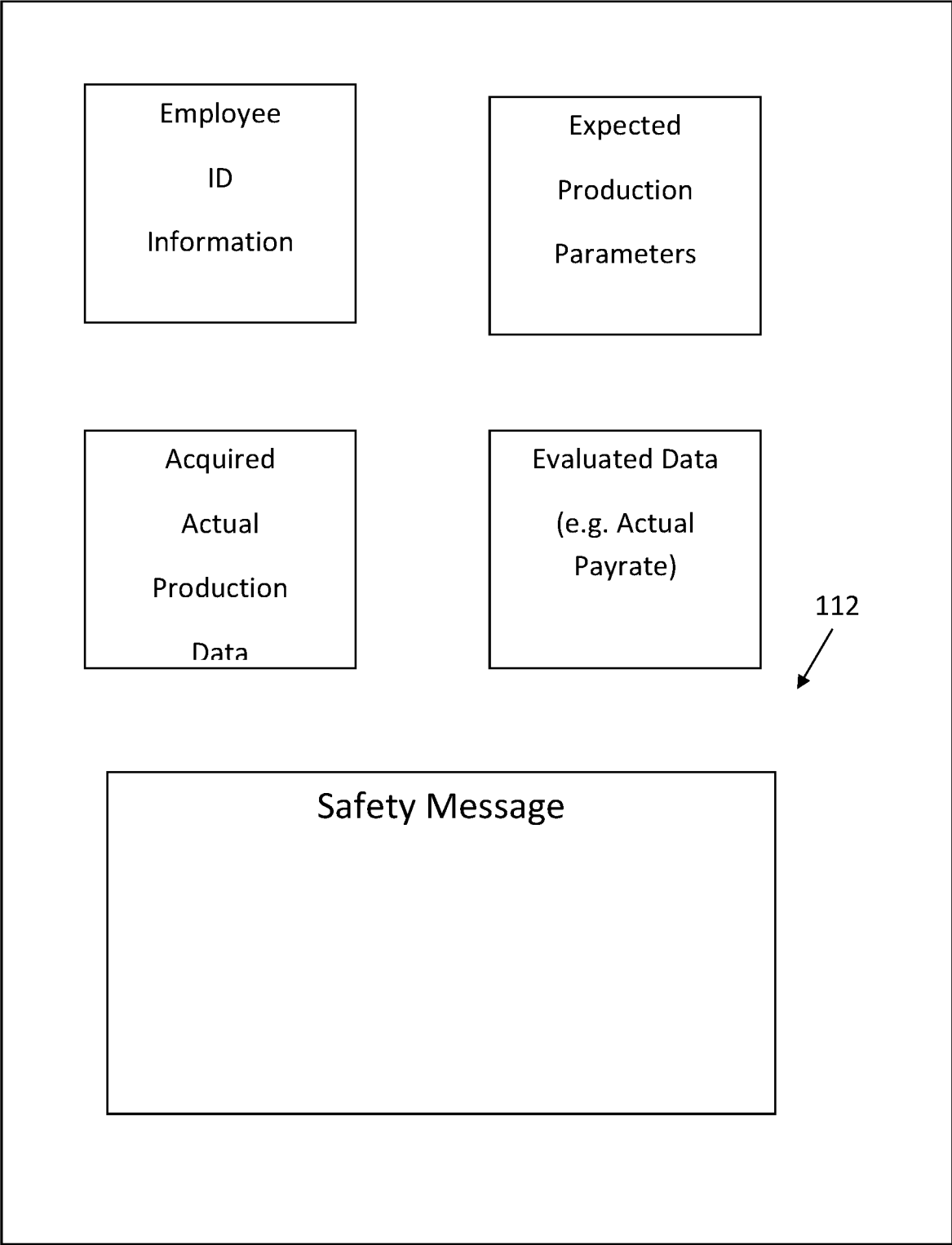


FIGURE 3

1

**SYSTEM AND METHOD FOR INCREASING
EMPLOYEE PRODUCTIVITY****CROSS REFERENCE TO RELATED
APPLICATIONS**

This application is continuation of U.S. application Ser. No. 15/591,795 filed May 10, 2017, which is a continuation of U.S. application Ser. No. 12/748,895, filed Mar. 29, 2010, now U.S. Pat. No. 9,659,269, which claims priority to U.S. Provisional Application No. 61/164,220 filed Mar. 27, 2009. Each of which are incorporated by reference as if fully recited herein.

INVENTIVE FIELD

Exemplary embodiments of the present invention are directed to a system and method for increasing employee productivity. More particularly, exemplary embodiments of the present invention are directed to a system and method for increasing employee productivity by illustrating the employee's pay rate directly to the employee.

BACKGROUND OF THE INVENTIVE FIELD

In any workplace setting the production of each individual is vital for overall success of the company. In any workplace setting, the main way to increase the profitability of the company is to measure and increase the productivity of each and every employee. There have been numerous studies and a countless amount of research to find ways to increase employee productivity. The result of this research indicates that a vital way to increase productivity of employees is to provide each and every employee with incentive to safely increase both the quantity and quality of their output. This may be accomplished by giving each employee personal responsibility within the process for the amount and quality of work they perform.

Oftentimes, in the workplace setting, the personal responsibility of employees consists mainly of meeting certain standards, expectations or goals during their scheduled work time. Furthermore, employees typically get paid by an hourly or salary rate. Consequently, employees have no real incentive to perform at any levels higher than the minimum goal number; as they will be paid the same amount of money regardless of any excess amount of output over the minimum goal. Accordingly, the employees see a disconnect between the employees realizing their individual increase in output and the employees being rightfully compensated for improvements in safety, quality and productivity

Normally, employers provide incentives to employees by providing compensation through increases in hourly rates, salary or periodic bonuses. However, many employees do not consider these as adequate forms of compensation. It may take weeks, months or even years before employees recognize the fruits of his or her individual labor. Furthermore, on a weekly or even shift basis, most employees do not have a way to evaluate if or how they may be adequately compensated if they go above the call of duty and perform above the minimum goals. Most employees do not have trust in management that they will be adequately compensated.

Consequently, it can be understood that there is a need for a system and method for increasing employee productivity. Preferably, such a system and method would provide employees with real-time incentive to safely increase the amount and quality of their individual output. It would also be preferable that such a system and method would make

2

each employee individually accountable for the amount of compensation they earn. Preferably, such a system and method may also provide timely monetary compensation for employees. Additionally, it is preferred that the system and method may have integrated safety and quality systems. A system and method of an exemplary embodiment of the system and method for increasing employee output may satisfy all or some of these needs/preferences.

**SUMMARY OF THE GENERAL INVENTIVE
CONCEPT**

One example of the present invention is directed to a system and method for igniting the spirit of human competition within the worker by encouraging them to safely increase productivity translating to their increased monetary compensation and their reward of meeting and beating production goals without sacrificing quality. More particularly, one example of the present invention is directed to a system and method for increasing employee compensation by illustrating the employee's pay rate in "real time" directly to a system that displays on any electronic device, stationary or portable, such as on a pay rate watch.

Generally speaking, an exemplary embodiment of the computerized system and method for increasing employee productivity provides a database for storing data, a data inputting device for inputting expected output parameters into the database and a data acquiring device for acquiring actual output data during performance of any workplace duties, preferably in real-time. The data acquiring device may be linked by an interface that transfers the acquired data to the database, where a processor may evaluate the inputted data versus the acquired data. The processor is connected to a data displaying device that may display the inputted, acquired and evaluated data, preferably in real-time.

Preferably, the system and method includes a data correcting device for correcting the actual production data after the production data has been acquired. It may be preferred that an exemplary embodiment includes a network that links to a machine's PC to the machine's PLC. In some exemplary embodiments, the machine's PLC may be controlled by and interrupted by the machine's PC for safety and quality related training and/or warnings in the form of e-mails and training presentation software. In some embodiments, the machine's PC allows a user to correct actual production data and shut down the machine. It is also preferred that an embodiment may include any portable or stationary data displaying device or any pay rate watch device adapted to secure around a user's wrist and is adapted to link with the processor. In another embodiment, the system and method includes a safety and quality control system that is adapted to lockout the machine whenever the employee identification number is not on an approved list of employee identification numbers stored in the database. In another embodiment, the system and method may link with a banking system for distributing a daily payroll or direct deposit of an employee's earned wages.

BRIEF DESCRIPTION OF THE DRAWINGS

In addition to the features mentioned above, other aspects of the present invention will be readily apparent from the following descriptions of the drawings and exemplary embodiments, wherein like reference numerals across the several views refer to identical or equivalent features, and wherein:

3

FIG. 1 is a schematic view illustrating one exemplary embodiment of a system for increasing employee productivity in a production process on a machine;

FIG. 2 is a flow diagram illustrating the steps of an exemplary embodiment of the method for increasing employee productivity in a production process on a machine; and

FIG. 3 is a screenshot illustrating an exemplary embodiment of the means for displaying data.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENT(S)

FIG. 1 depicts a schematic of one exemplary embodiment of a system 10 for increasing employee productivity in a production process on a machine (hereinafter "system"). Similarly, FIG. 2 is flow diagram illustrating the steps of an exemplary embodiment of the method for increasing employee productivity in a production process on a machine. As shown, this particular system 10 is shown to have a database 100 for storing data, a data inputting device for inputting expected production parameters 102 into the database 100, a data acquiring device for acquiring actual production data 104 from the machine 20, an interface 106 for transferring the acquired production data to the database 100, and a data correcting device for correcting actual production data 108 after the production data is acquired. Additionally, this embodiment of the system 10 includes a processor 110 for evaluating the inputted data versus the acquired data, a data displaying device 112 for displaying the inputted, acquired and evaluated data, a computer network 114 that links the machine to the database 100, and the data displaying device 112, a safety control system 116, a quality control system 118, and an automated telling machine 120.

In this embodiment, a data inputting device for inputting expected production parameters 102 into the database 100 for storing data is a computer terminal that is in connection with the database 100. Typically, production parameters that may be inputted in the database 100 include, but are not limited to: standard time to fabricate an individual part; standard rate of pay per part; standard pay rate per minute, hour, shift, week, month, year; standard number of parts fabricated in a minute, hour, shift, week, month, year; employee's name; employee's identification from fingerprints, retinal scan, DNA, etc.

The system 10 includes a data acquiring device for acquiring actual production data 104 from a machine, which in this particular embodiment, is a programmable logic controller that is linked to multiple sensors. Typically, actual production data acquired may include, but is not limited to: total parts produced per second, minute, hour, shift, week, month, year; scrap rate per second, minute, hour shift, week, month, year; total machine run time; runtime per part, shift, week, month, year; total machine downtime; downtime per part, shift, week, month, year; product quality data; machine safety data, etc. Typically, but not necessarily, the actual production data may be acquired automatically and in real-time.

Furthermore, in this particular embodiment, an interface 106 transfers the acquired production data to the database 100. The interface 106 may be any type of connection that includes, but is not limited to: cable or telephone lines, the Internet, satellite links, etc. In this particular embodiment, the interface 106 is wired. However, in other exemplary embodiments, the interface 106 may be wireless.

4

Although it is preferred that an embodiment of the system 10 includes a data correcting device for correcting actual production data 108 after the production data is acquired, it is not required. In this embodiment, the data correcting device 108 is a computer terminal that is in connection with the database 100. Preferably, but not necessarily, the computer terminal is the same computer terminal used to input production parameters. In other embodiments, the data correcting device 108 may be a keypad or keyboard linked with a programmable logic controller.

This particular embodiment includes a processor 110 for evaluating the inputted production parameters versus the acquired production data to produce evaluated data. The processor 110 executes algorithms to produce the evaluated data. The following are a couple of examples of algorithms that may be performed by the processor 110 given the inputted production parameters and the acquired data. These examples are in no way limiting the capability of the numerous different algorithms the processor 110 may execute. One simple example of a typical algorithm executed by the processor may produce the total realized pay for an employee for a shift that could be set forth in a relationship such as, but not limited to:

$$TRPS=X*TPPS$$

where:

TRPS is the total realized pay for an employee for a shift;

X is the standard pay rate per part; and

TPPS is the total parts produced for a shift.

In this example, the standard pay rate per part would be inputted into the database 100 as one of the performance parameters and the total parts produced for a shift would be actual data acquired from the machine during the production process. In another example, the algorithm may produce the difference between expected pay per shift and the realized pay per shift that could be set forth in a relationship such as, but not limited to:

$$DEPRP=X*TPPS-EPs$$

where:

DEPRP is the difference between the expected pay and realized pay per shift

X is the standard pay rate per part;

TPPS is the total parts produced for a shift; and

EPs is the expected pay per shift.

In this example, the standard pay rate per part and the expected pay per shift would be inputted into the database 100 as one of the performance parameters and the total parts produced for a shift would be actual data acquired from the machine during the production process.

In another example, the algorithm may produce the realized hourly rate by an employee that could be set forth in a relationship such as, but not limited to:

$$RHR=[TPPS/T]*X$$

where:

RHR is the realized hourly rate

TPPS is the total parts produced for a shift;

T is total time in hours; and

X is the standard pay rate per part.

In this example, the standard pay rate per part would be inputted into the database 100 as one of the performance parameters and the total parts produced for a shift and the total time in hours would be actual data acquired from the machine during the production process.

Normally, the processor 110 may produce evaluated data including, but is not limited to: difference between expected

5

pay and realized pay per second, minute, hour, shift, week, month, year; realized pay per minute, hour, shift, week, month year; realized pay-rate per hour, shift, week, month, year; difference between expected and realized parts produced per minute, hour, shift, week, month, year; quality data, and safety data. Typically, but necessarily, the evaluated data is produced automatically and in real-time.

In one particular embodiment, the system **10** includes a data displaying device **112** that may display the inputted, acquired and evaluated data that is adapted to connect to the database **100**. An example of a screenshot of an exemplary embodiment of the data displaying device is illustrated in FIG. **3**. In this particular embodiment, the means for displaying **112** is an electronic display. Preferably, but not necessarily, the data displaying device **112** is located within visible sight of the employee operating a machine to help provide incentive to the employee to increase both production rate and quality. In this regard, the data displaying device **112** may be a portable device that is adapted to connect to the database **100** using a wireless network. Preferably, but not necessarily, the portable display device may be adapted to secure around an individual's wrist, the result being a device that may resemble a wristwatch. In another other embodiment, the portable device may be adapted to secure to an individual's belt. However, in other embodiments, the data displaying device **112** may be any type of display screen that may be adapted to connect to the database **100** through a wireless or wired connection. In one exemplary embodiment, the data displaying device **112** may be a monitor for a computer. In some exemplary embodiments, the data displaying device **112** is engaged with and adjacent to a machine on an assembly line or in the employee's workstation to ignite the spirit of human competition within the worker by encouraging them to safely increase productivity translating to their increased monetary compensation and their reward of meeting and beating production goals without sacrificing quality.

In whatever form, all the components of the system **10** are preferably linked by a network **114**. However, the network **114** may link any and/or all components of the system **10**. One skilled in the art would realize that there are many different ways to network the components, including, but not limited to: cable or telephone lines, the Internet, satellite links. In this particular embodiment, the network is wireless. However, in other exemplary embodiments, the network **114** may be wired and/or wireless, depending upon the design factors and other considerations, as would understood by one skilled in the art.

In this particular embodiment, the system **10** includes a safety control system **116** adapted to communicate with the machine. Although the safety control system **116** is preferred, other exemplary embodiments of the system **10** may not include such a safety control system **116**. In one particular embodiment, the safety control system **116** may have a terminal wherein an individual may input an individual identification code. In this embodiment, depending upon the identification code entered, the machine may lockout whenever the employee identification number is not on a secured list in the database.

In other exemplary embodiments, the safety and quality control system **116** may control a machine's PLC and interrupt operation of the machine. In this particular embodiment, the safety control system **116** is controlled by a PC. In some embodiments, the safety control system **116** may interrupt the machine's PC for safety or quality related training and/or warnings in the form of emails and training presentation software. In one example, at the start of a shift,

6

the safety control system **116** may walk a worker through a training exercise before the worker may start working. In another example, an administrator or another authorized individual may send the machine's PC an email message that must be read by a worker before the machine will start or continue operating.

In order to provide timely incentive rewards for employees, a banking system **118** for distributing a daily payroll or direct deposit of an employee's earned wages may be linked with the system **10** to provide an amount of money earned by the employee. In this particular embodiment, an individual may obtain the amount of money they earned from an automated telling machine at the end of each production shift. However, in other embodiments, the banking system **118** may allow the employee to obtain the amount of money they earned at varying time intervals, such as, but not limited to: each hour, daily, weekly, monthly, yearly or each break period. In yet another embodiment, the banking system **118** may provide other forms of compensation by itself, or in addition to monetary compensation. One example may be where the banking system **118** may provide employees with tokens that the employee may spend at a company store. In other embodiments, the banking system **118** may directly deposit the employee's earned wages into a predetermined banking or checking account.

While certain embodiments of the present invention are described in detail above, the scope of the invention is not to be considered limited by such disclosure, and modifications are possible without departing from the spirit of the invention as evidenced by the following claims:

What is claimed is:

1. A system for increasing productivity in a production activity comprising:
 - a machine for use in association with performance of the production activity, wherein performance of the production activity results in the generation of one of more units of output;
 - a database comprising earnings data for a team member tasked with performing the production activity, wherein said earnings data comprises a monetary amount for each unit of output generated while performing the production activity;
 - a data input device for entering an expected production parameter for said team member into the database, wherein the expected production parameters comprise an expected number of units of output to be generated over a working time period of time while performing the production activity;
 - a data acquiring device configured to automatically receive actual production data indicating the number of units of output produced by said team member during performance of the production activity over the working time period, said data acquiring device in electronic communication with said machine;
 - a processor configured to automatically generate an expected earnings rate for said team member by multiplying the expected production parameter with said earnings data for said team member, wherein said processor is further configured to automatically generate and update, on an ongoing, continuous basis while performance of the production activity is underway, an evaluated earnings rate for said team member by multiplying the acquired actual production data for an actual working time period with the earnings data for said team member; and
 - a display in communication with said processor, said display configured to automatically show and update

7

on an ongoing, continuous basis while performance of the production activity is underway said evaluated earnings rate for said team member over said actual working time period.

2. The system of claim 1 wherein: 5
said unit of output comprises a tangible object.

3. The system of claim 2 wherein:
said display comprises an electronic display mounted to the machine. 10

4. The system of claim 1 wherein: 10
said unit of output comprises a time entry associated with a unit of service.

5. The system of claim 4 wherein:
said machine comprises a personal electronic device comprising an electronic display; and 15
said display comprises a dialog box on said electronic display.

6. The system of claim 1 wherein:
said data acquiring device is configured to receive said actual production data from said machine in substantially real time; 20
said processor is configured to generate said expected earnings rate and said evaluated earnings rate for said at least one team member in substantially real time; 25
said processor is configured to transmit said generated expected earnings rate and said evaluated earnings rate for said at least one team member to said display in substantially real time; and
said display is configured to update in substantially real time. 30

7. The system of claim 1 wherein:
said earnings data is unique to said team member.

8. The system of claim 1 wherein:
the database is linked to the display by way of a wireless network. 35

9. The system of claim 8 wherein:
the display is portable.

10. The system of claim 9 wherein:
the data displaying device is adapted to be secured around the at least one team member's wrist. 40

11. The system of claim 1 further comprising:
a banking system in electronic communication with the processor, wherein the processor is configured to transmit instructions to the banking system to disburse an amount of money earned by the at least one team member based on the evaluated earnings rate summed for the working time period. 45

12. The system of claim 11 wherein:
the processor is configured to disburse the amount of money earned by the at least one team member immediately following the working time period. 50

13. A method for increasing productivity in a production activity comprising the steps of:
producing, at a machine, one or more units of output by performing the production activity; 55
determining, in an automated fashion, the number of units of output produced from said machine on an ongoing, continuous basis during performance of the production activity; 60
generating, on an ongoing, continuous basis during performance of the production activity, an expected earnings rate for at least one team member performing the production activity at the machine, wherein said expected earnings rate is determined by multiplying an expected number of units of output for a time period with a monetary amount; 65

8

generating and updating, on an ongoing, continuous basis during performance of the production activity, an actual earnings rate for the at least one team member by multiplying the number of units of output actually produced from the machine by the monetary amount; and
displaying and updating, on an ongoing, continuous basis during performance of the production activity, the expected earnings rate and the actual earnings rate on a display associated with the machine such that the at least one team member working at the machine is able to view the actual earnings rate in comparison to the expected earnings rate while at least the actual earnings rate is updated during performance of the production activity by the at least one team member at the machine.

14. The method of claim 13 wherein:
said expected earnings rate and said actual earnings rate are displayed simultaneously and in proximity with one another on the display.

15. The method of claim 13 wherein:
said unit of output is a work entry indicating provision of services.

16. The method of claim 13 further comprising the steps of:
disbursing, upon completion of the performance activity, a payment equal to the number of units of output actually produced from the machine during performance of the production activity multiplied by the monetary amount.

17. A system for increasing productivity in a production activity comprising:
a number of machines, each associated with one of a number of team members, wherein each of said machines is configured to accomplish the production activity, and wherein performance of the production activity results in the generation of one of more units of output;
a database comprising earnings data for each of the number of team members, wherein said earnings data comprises a monetary amount for each unit of output generated while performing the production activity, and wherein the monetary amount is specific to the team member;
a data input device for entering expected production parameters into the database, wherein the expected production parameters comprise an expected number of units of output to be generated over a period of time while performing the production activity, and wherein the expected production parameters are specific to the team member;
a number of data acquiring devices, each associated with one of the machines and configured to automatically receive actual production data indicating the number of units of output produced from said machine on an ongoing, continuous basis during a time period in substantially real time;
a processor configured to receive said expected production parameters, said earnings data, and said actual production data for each of the number of team members for the time period and generate an expected earnings rate for each of said number of team members by multiplying the expected production parameters with said earnings data for the respective team member, wherein said processor is further configured to generate an evaluated earnings rate for each of the number of team members by multiplying the acquired actual pro-

duction data for the time period with the earnings data for the respective team member and update said evaluated earnings rate on an ongoing, continuous basis in substantially real time based upon updates to said actual production data while the production activity is underway; 5

a number of displays, each associated with one of the number of machines, wherein each of the number of displays are in electronic communication with said processor and are configured to display said evaluated earnings rate and said expected earnings rate for the team member associated with the machine associated with the display and not the evaluated earnings rate and expected earnings rate for any other of the number of team members on an ongoing, continuous basis while the production activity is underway based on updates to said evaluated earnings rate such that the team member working at the associated one of the number of machines is able to view changes to the evaluated earnings rate in comparison to the expected earnings rate in substantially real time while the production activity is underway; and 10

a banking system in electronic communication with the processor, wherein the banking system is configured to, based upon instructions received from the processor, disburse an amount of money earned by each of the team members based on the team member's evaluated earnings rate following completion of the production activity. 15 20 25

18. The system of claim 1 wherein:
said display is configured to display said evaluated earnings rate and said actual earnings rate as a monetary amount over a unit of time.

19. The system of claim 1 wherein:
said data acquiring device is configured to automatically update said actual production data as each unit of output is generated from the machine during performance of the production activity;
said processor is configured to automatically generate and update said evaluated earnings rate with each update to the actual production data; and
said display is configured to automatically show and update said evaluated earnings rate with each update to the evaluated earnings rate.

20. The method of claim 13 wherein:
said determination of the number of units of output produced from said machine during performance of the production activity is continually made on an ongoing basis as each unit of output is generated from the machine during performance of the production activity;
said evaluated earnings rate is updated with each new determination of the number of units of output produced from said machine during performance of the production activity; and
said display of at least the actual earnings rate is updated with each new update to the evaluated earnings rate.

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